

# Technology Leadership Professional Development for CKEC

Dr. Justin Bathon  
Dr. Jayson W. Richardson  
CASTLE / University of Kentucky



**Say hi  
to your  
neighbors!**

**Socially functional**

**Mastery of information  
landscape**

**Economically productive**

"A brilliant teacher, Christensen brings clarity to a muddled and chaotic world of education." – JIM COLLINS, bestselling author of *Good to Great*

# Disrupting Class

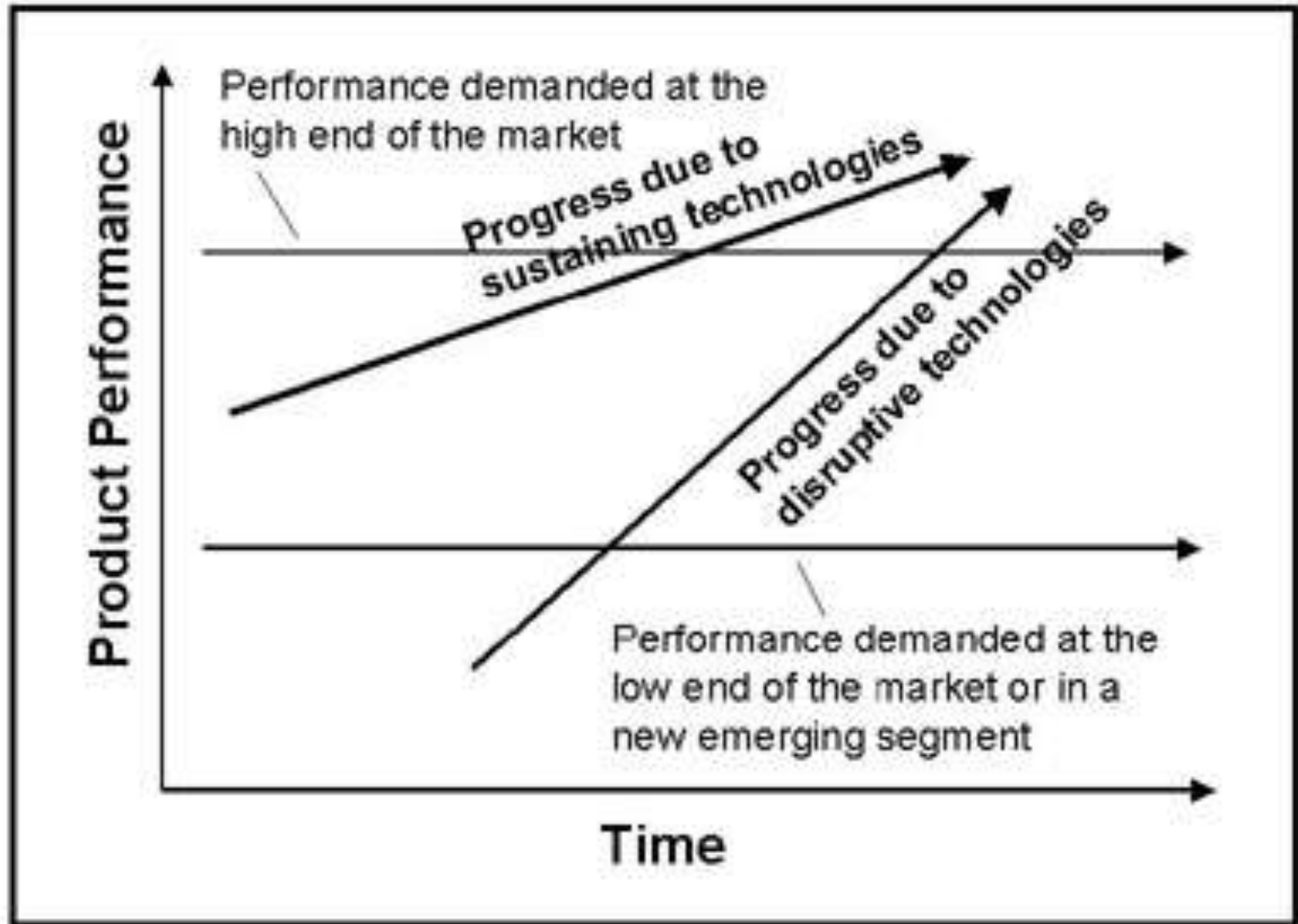
*How Disruptive Innovation Will  
Change the Way the World Learns*



**Clayton M. Christensen**  
BESTSELLING AUTHOR OF *THE INNOVATOR'S DILEMMA*

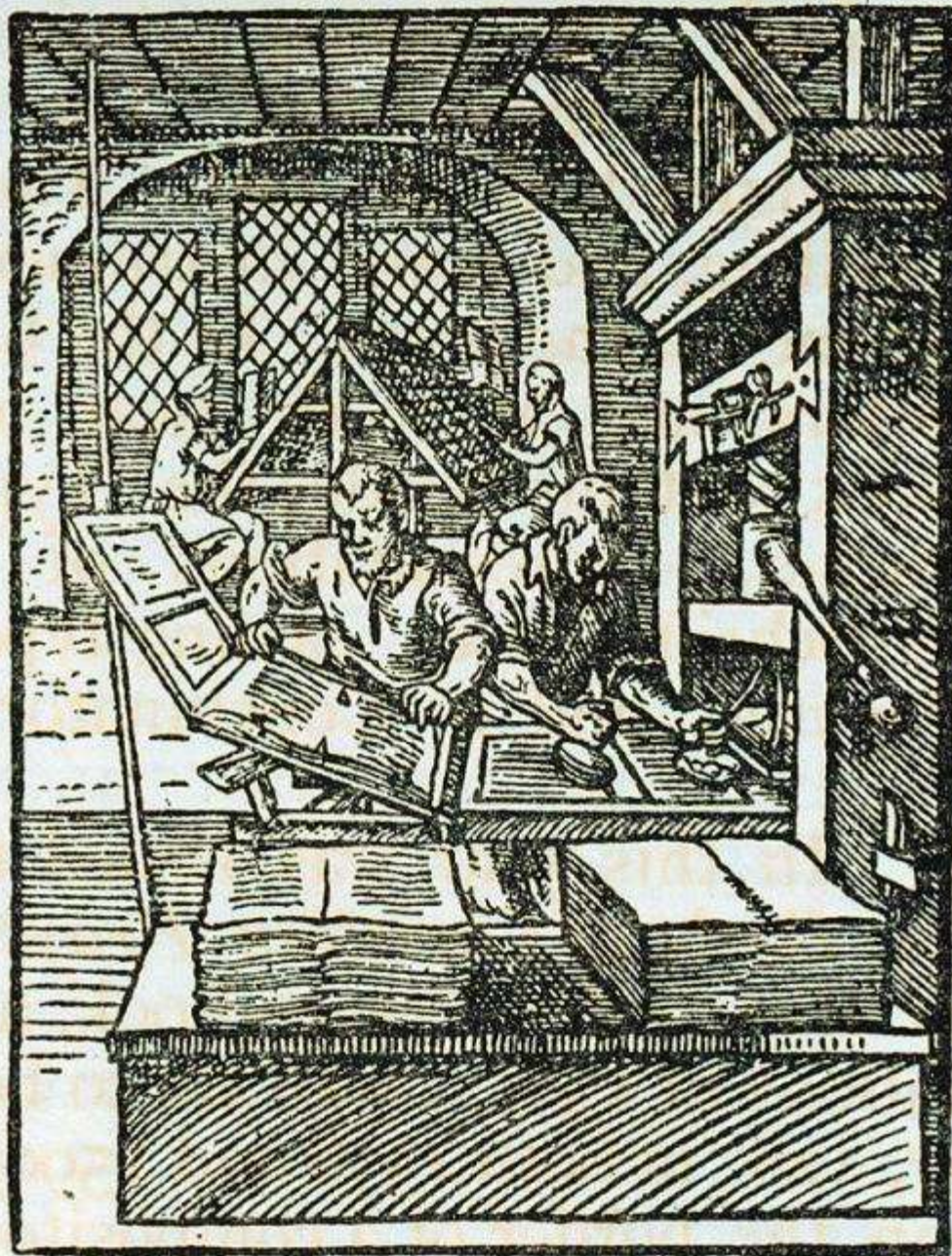
**Michael B. Horn & Curtis W. Johnson**

<b>Disruptor</b>	<b>Disruptee</b>
Cell phones	Landlines
Community colleges	Four-year colleges
Discount retailers	Full-service department stores
Retail medical clinics	Traditional doctor's offices
Online courses	Face-to-face courses
Your example	Your example
Your example	Your example



# Innovator's Dilemma?

Stigma of Failure  
Implementation Dip



1568. AMMAN

# **New information landscape**

**[ pause ]**

**Are schools ready to address disruptive innovations?**

**60 59 58 57 56 55 54 53 52 51**

**50 49 48 47 46 45 44 43 42 41**

**40 39 38 37 36 35 34 33 32 31**

**30 29 28 27 26 25 24 23 22 21**

**20 19 18 17 16 15 14 13 12 11**

**10 9 8 7 6 5 4 3 2 1**

**60 59 58 57 56 55 54 53 52 51**

**50 49 48 47 46 45 44 43 42 41**

**40 39 38 37 36 35 34 33 32 31**

**30 29 28 27 26 25 24 23 22 21**

**20 19 18 17 16 15 14 13 12 11**

**10 9 8 7 6 5 4 3 2 1**

A photograph of a weathered, arched gravestone in a cemetery. The stone is light-colored with dark, mottled patches of moss or lichen. It has a simple, arched top and is set on a rectangular base. The text "CHANGE OR DIE" is overlaid in the center of the stone in a large, black, serif font. The background shows other gravestones and trees in a dimly lit setting.

CHANGE  
OR DIE

# magazines



# newspapers



# television



# music



radio



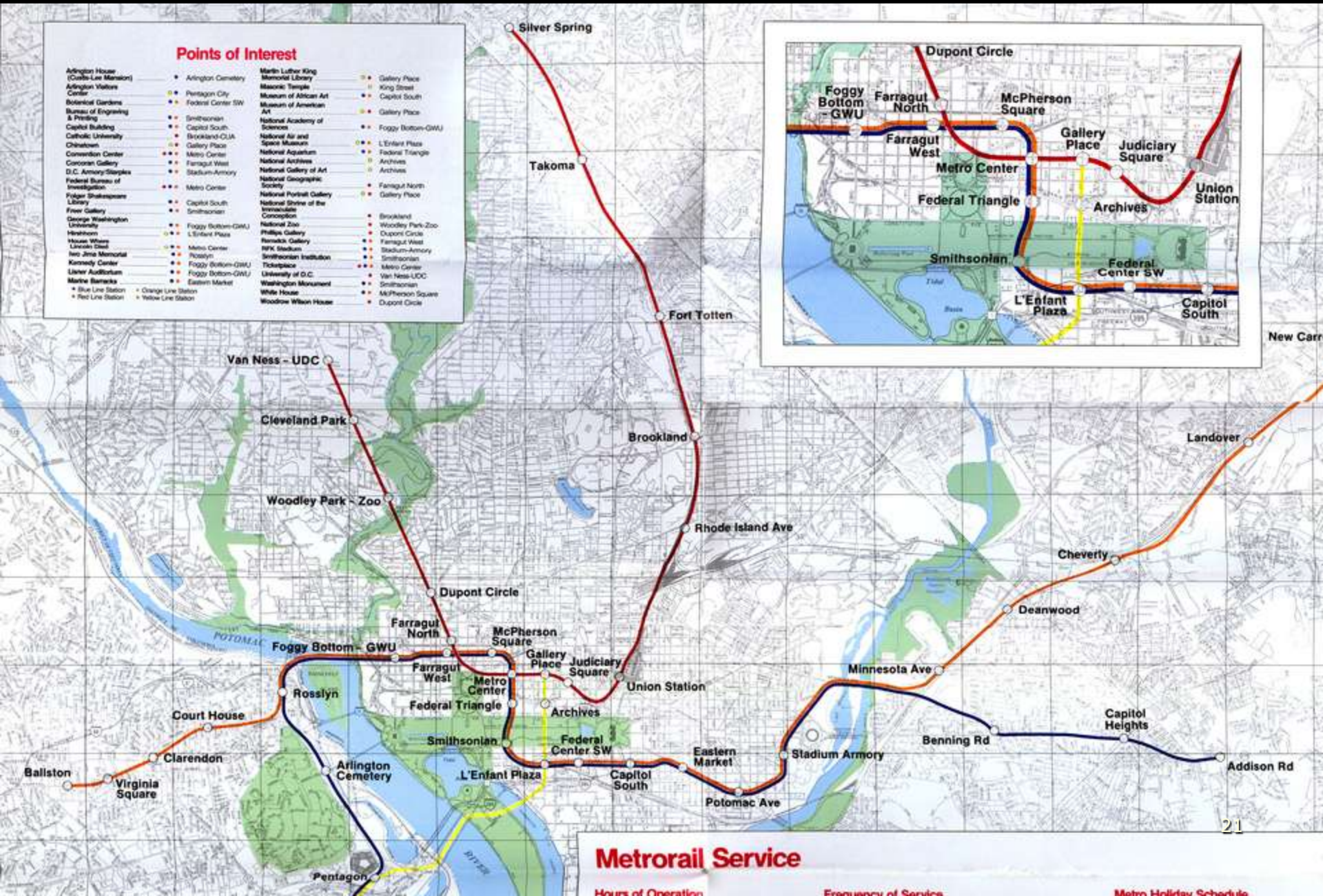
movies



# books, reading



# maps, travel



# travel agencies



# business, personal finance, money management



# medicine, health



# postal service



**real estate**





# universities



**Information-  
oriented**

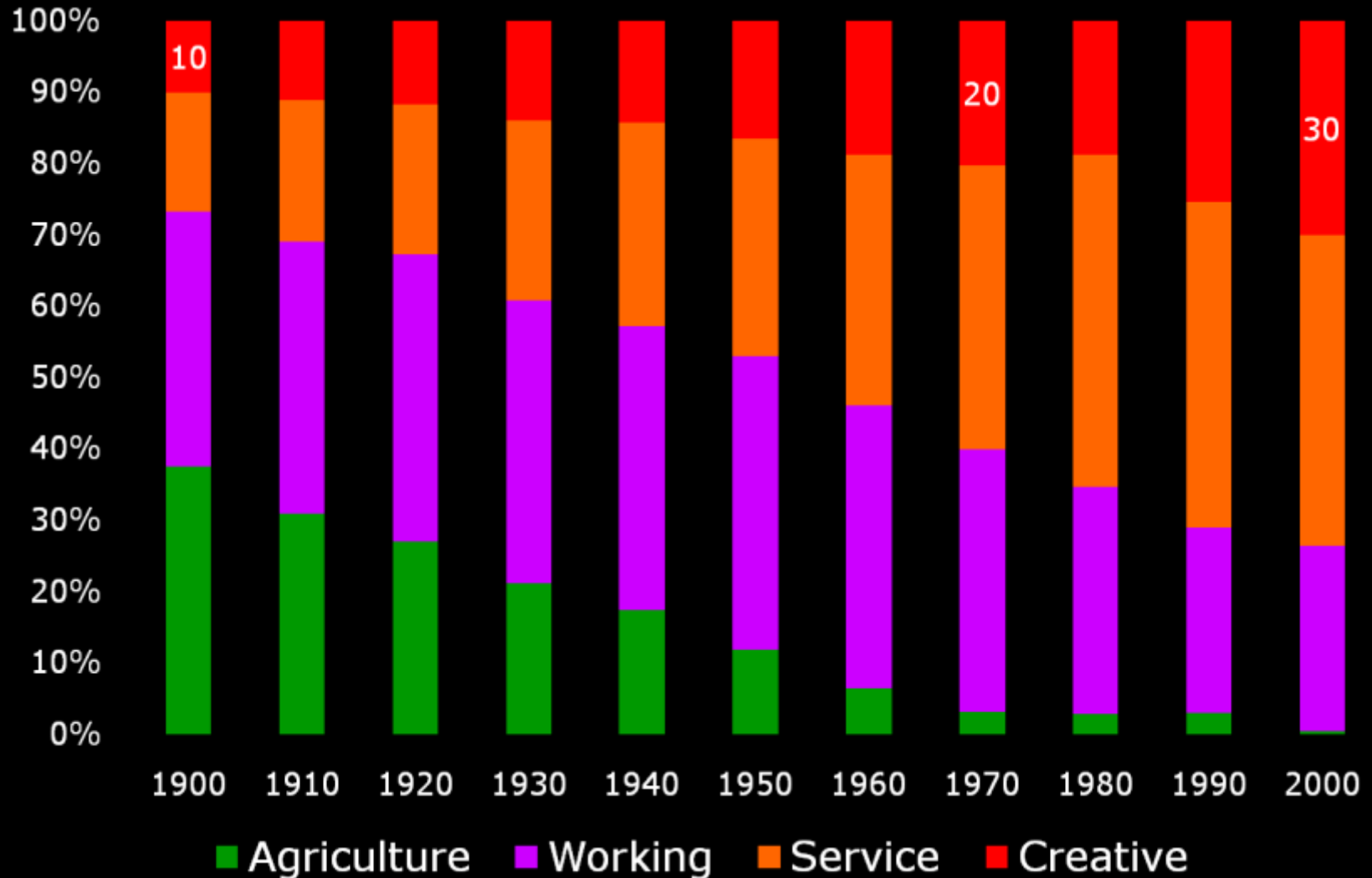
# P-12 schools



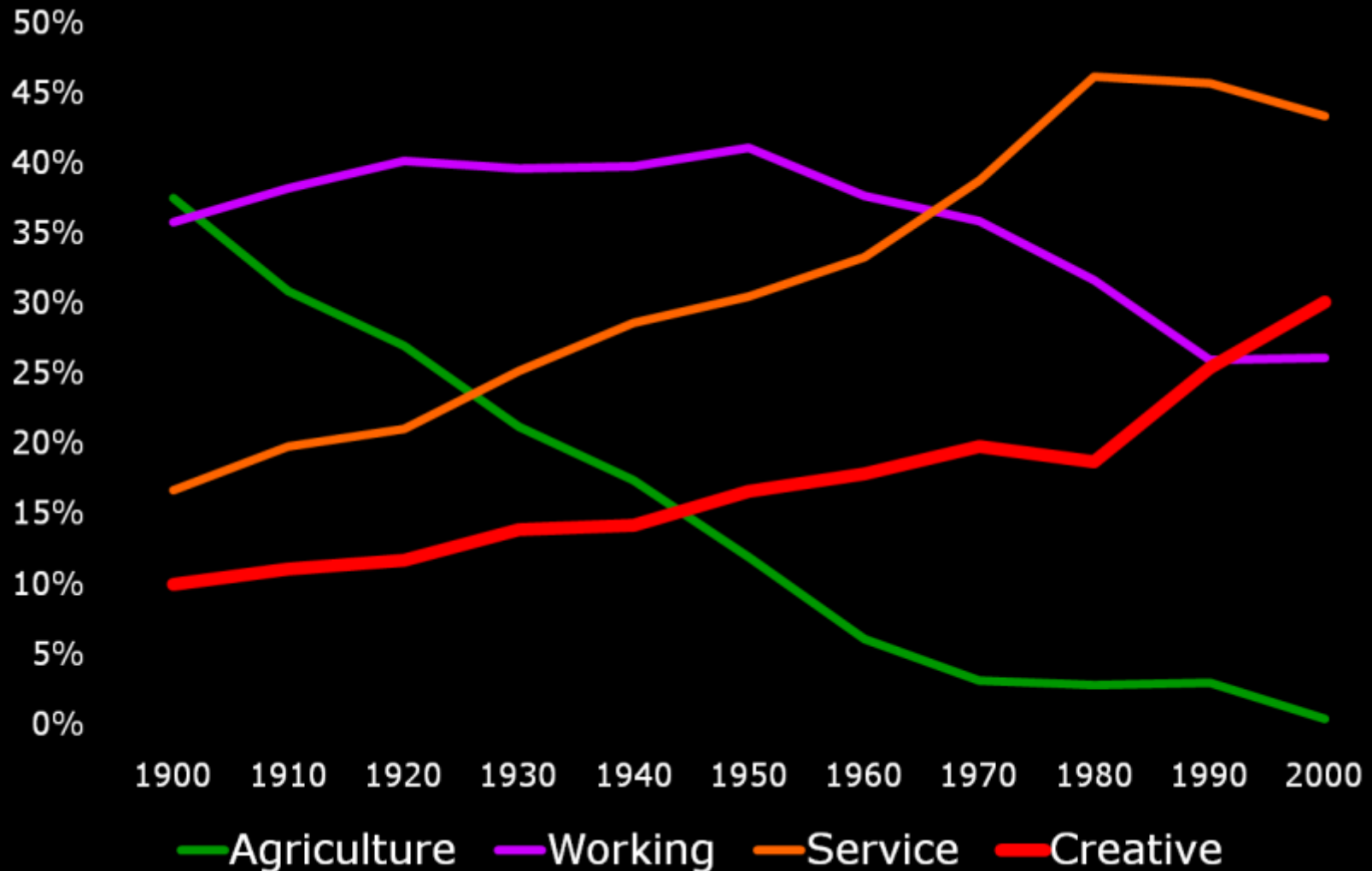
A photograph of a weathered, arched gravestone in a cemetery. The stone is light-colored with dark, mottled patches of moss or lichen. It has a simple, arched top and is set on a rectangular base. The background shows other graves and trees in a dimly lit setting. The text "CHANGE OR DIE" is overlaid in a serif font.

CHANGE  
OR DIE

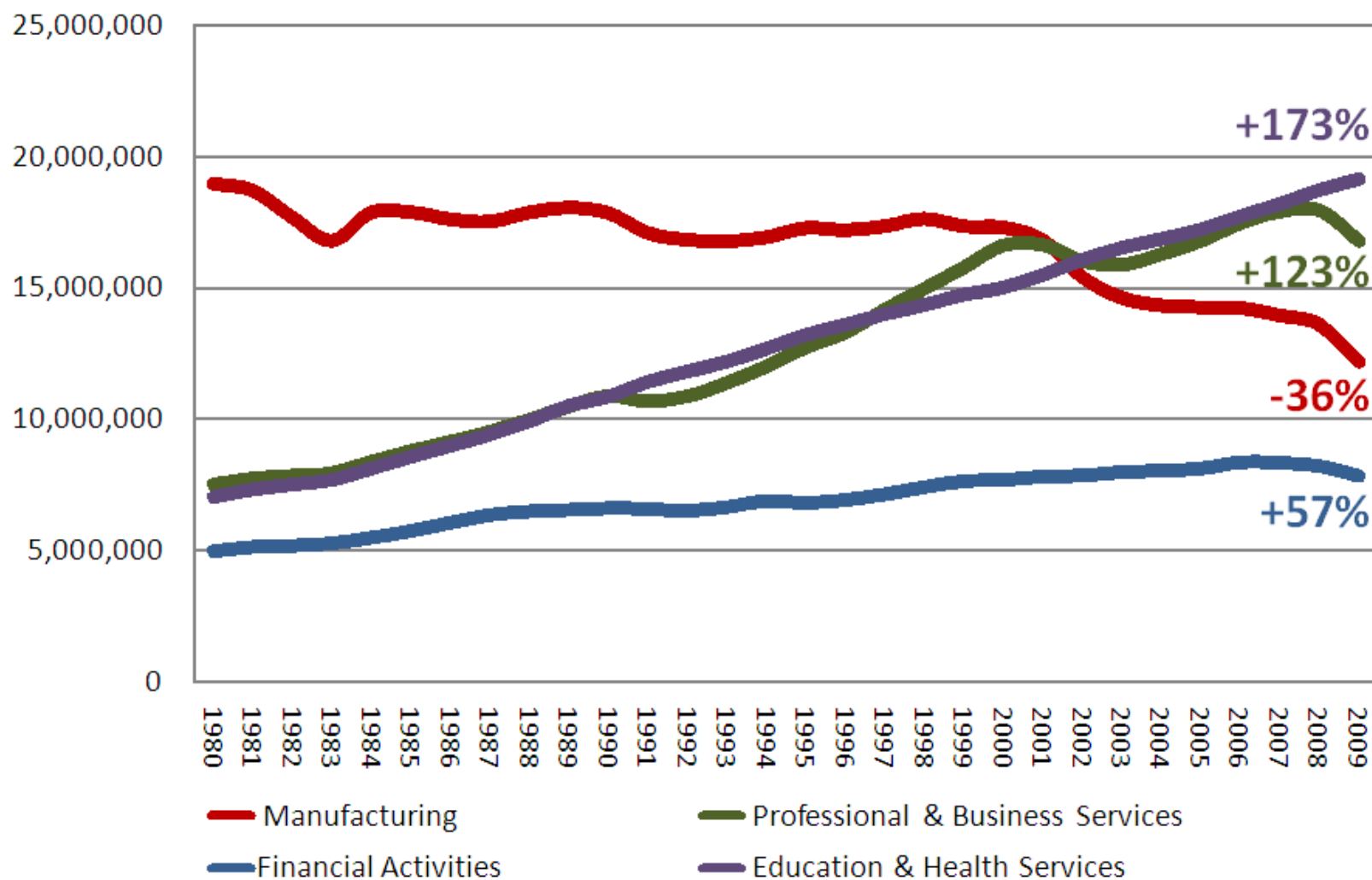
# Growth of the creative class



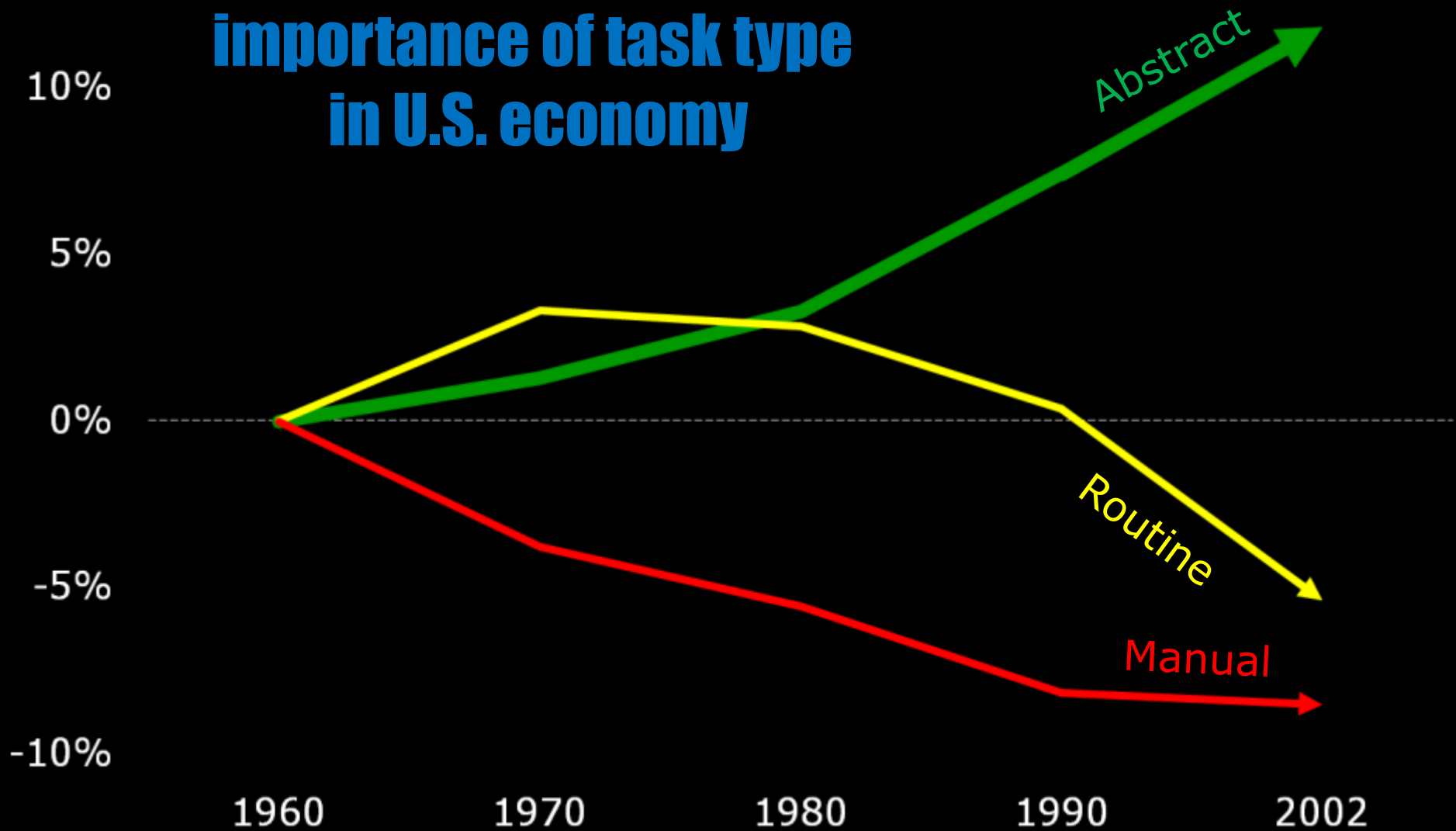
# Growth of the creative class



## EMPLOYMENT BY SECTOR United States, 1980 to 2009

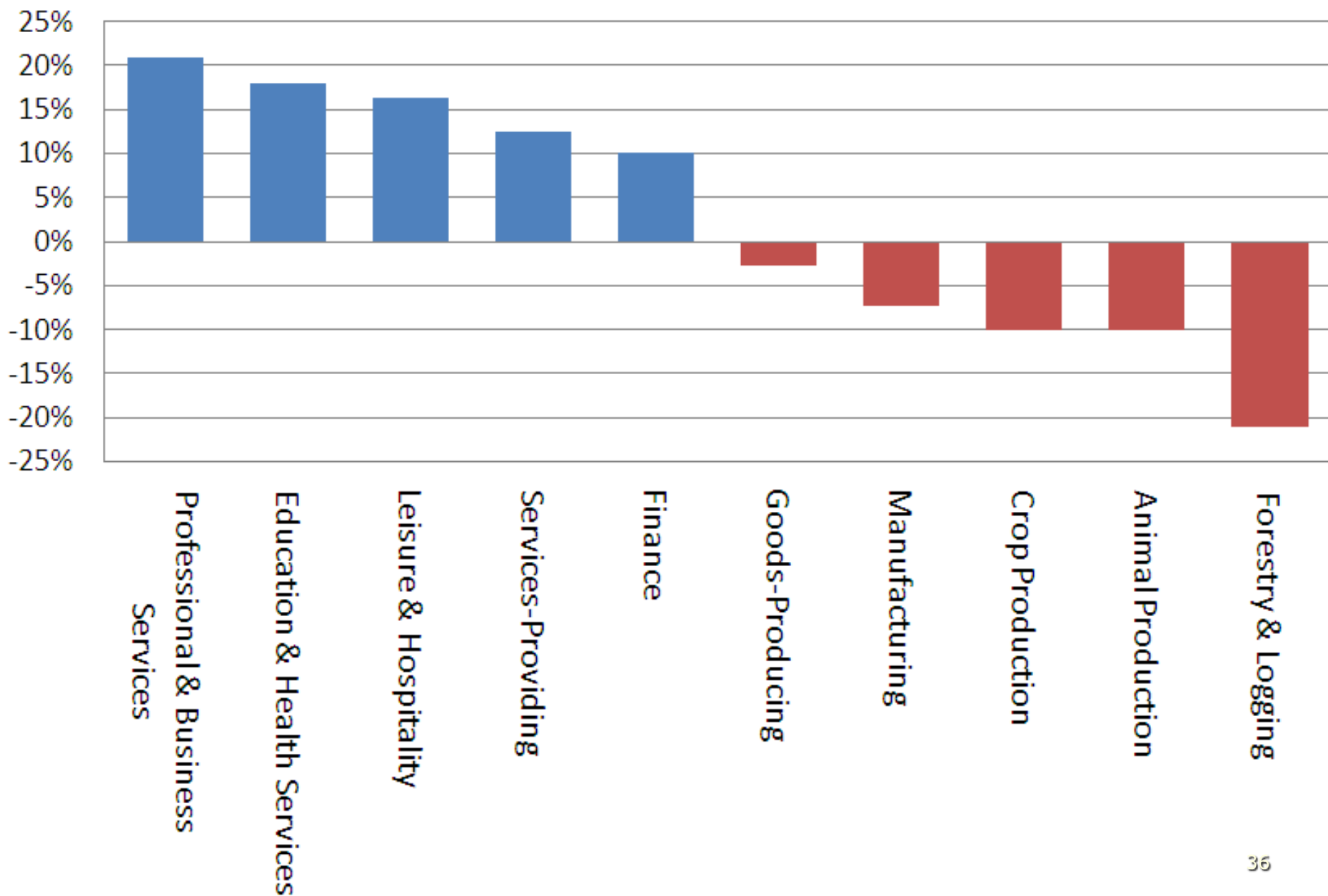


# Percentile change in importance of task type in U.S. economy



Autor, D., Levy, F., & Murnane, R. J. (2003). The skill content of recent technological change: An empirical exploration. *Quarterly Journal of Economics* 118, 4. [updated, D. Autor, 2008]

**Kentucky Workforce Projections, 2006-2016**



global awareness

effective speaking

critical thinking

problem solving

adaptability

information literacy

collaboration

creativity

media fluency

analytical skills

entrepreneurialism

innovation

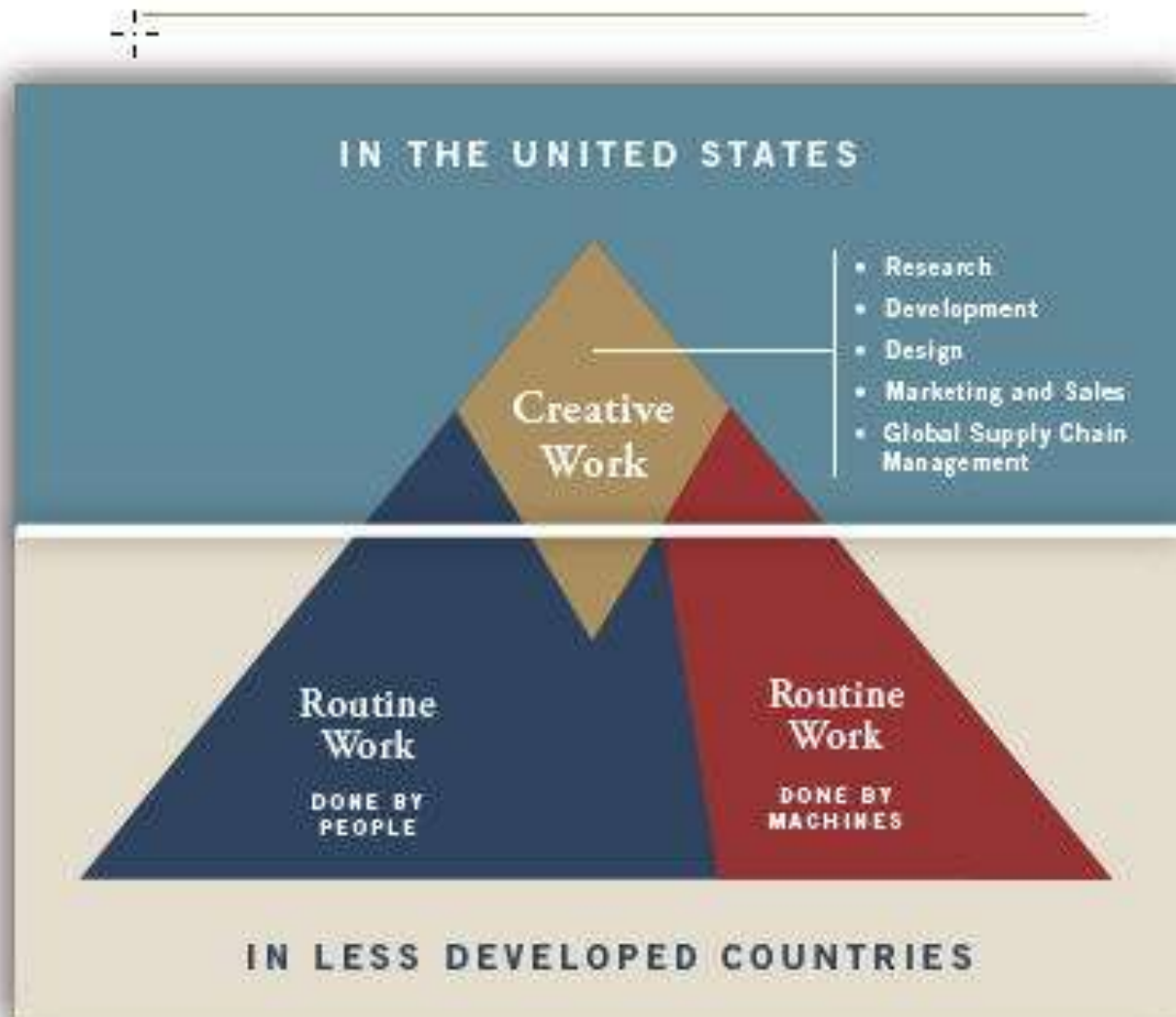
effective writing

synthesis

curiosity

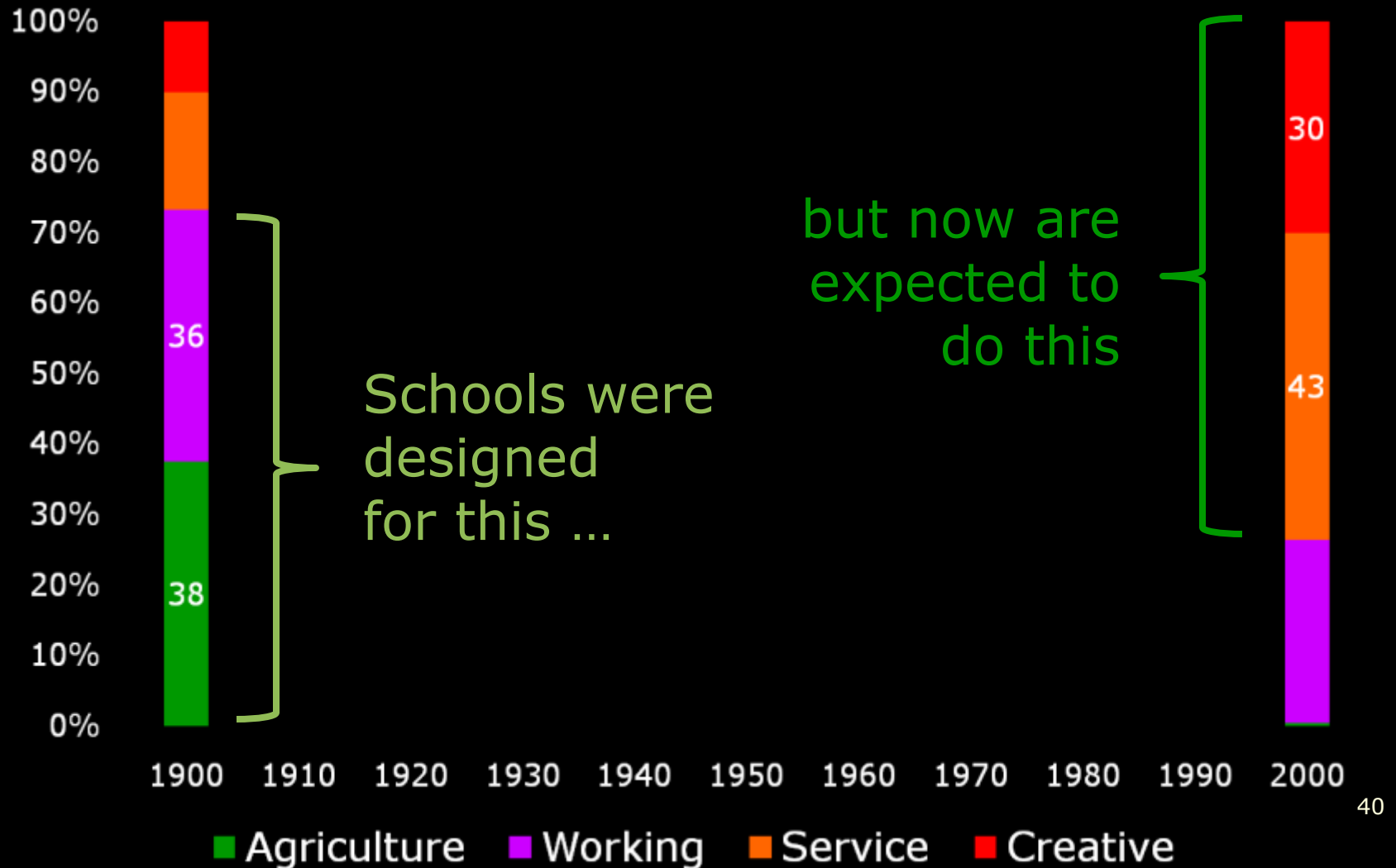
# PROTOTYPICAL U.S. INDUSTRY

*in 10 years if all goes well*



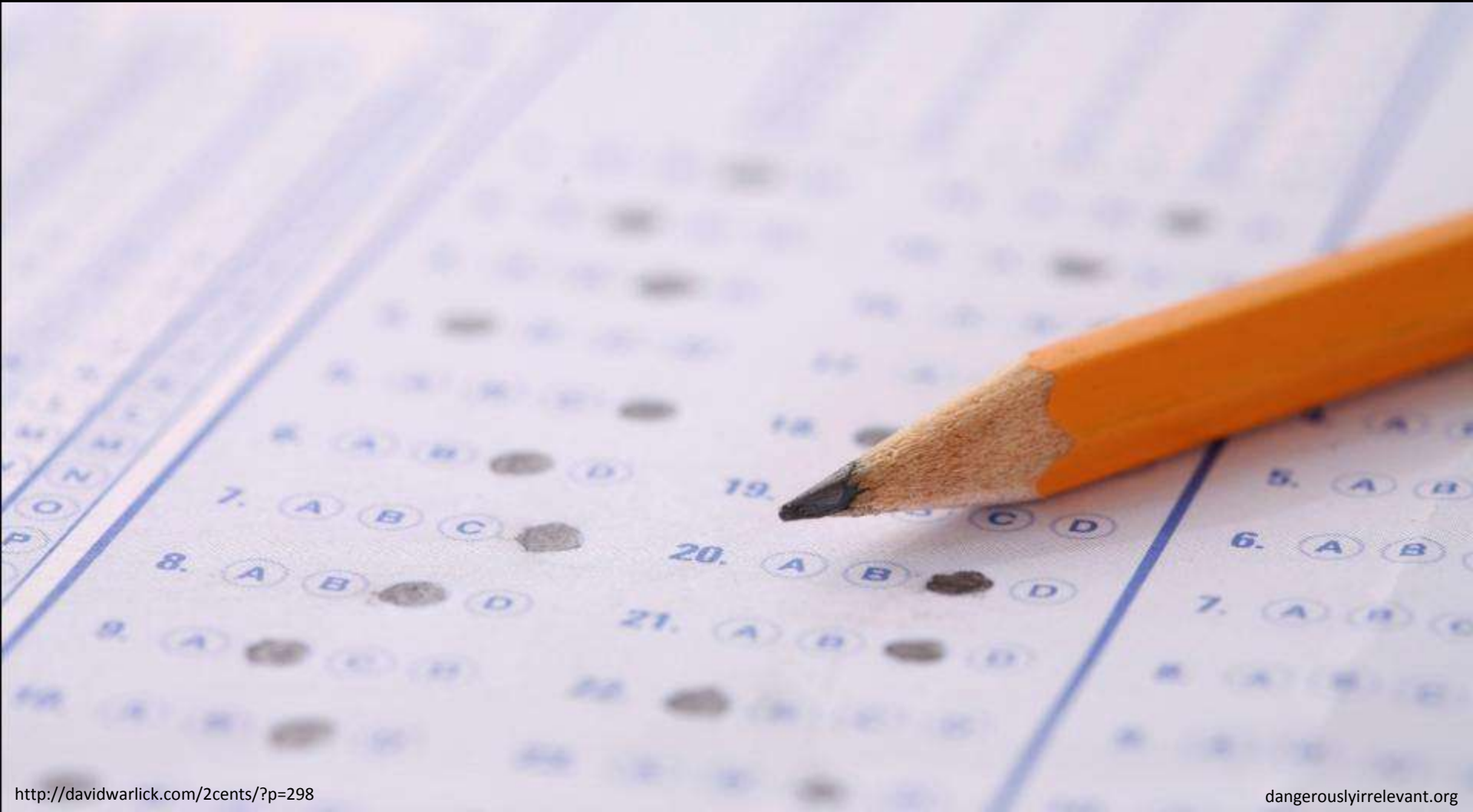


# The fundamental dilemma



**No generation in history has ever been so thoroughly prepared for the industrial age.**

David Warlick





What are we going to ask on our tests, when our students are walking in with Google in their pocket? Are they going to be better questions than we ask today? David Warlick



**While we teach  
whatever we teach at  
school, the kids go  
home and learn the  
skills they need to  
survive and prosper in  
an interconnected  
global economy.**

Clarence Fisher

# **The future (and present) of learning**

# Online degrees and video courses from leading unive



**Adaptation to Climate Change**  
STANFORD / ENVIRONMENTAL SCIENCE  
Lisa Schipper



**Issues of the 2008 Election**  
STANFORD / POLITICAL SCIENCE  
Al Camarillo



**Man Tombs**  
ART & ARCHITECTURE  
Man Tombs

## ► Universities

## ▼ Subjects

Online Bachelor's Degrees  
Online Courses for Credit  
Online Master's Degrees  
Online Professional

## FEATURED COURSES



USC  
Online Master's Degree

## FEATURED LECTURES



## ► Top

## ▼ Top

45

 Share

 Become Facebook Fan

 RSS

 Subscribe by



## Reinventing Philanthropy Through Principles of Business

Jacqueline Novogratz: Seeking social return on investment



FORA.TV: FORWARD THINKING

### FEATURED PROGRAMS ON ECONOMY



## John Maeda: Laws of Simplicity for Design and Business

FORA.TV: FORWARD THINKING



## World Business Forum

October 5 - 6 2010, Radio City Music Hall® New York

- > Incredible Speakers
- > Unparalleled Learning
- > The Critical Issues
- > Top Networking Opportunities

[Store](#)[Mac](#)[iPod](#)[iPhone](#)[iPad](#)[iTunes](#)[Support](#)[Search](#)

# iTunes U

[What is iTunes U](#)[What's on iTunes U](#)[Profiles](#)

## Learn anything, anytime, anywhere.

iTunes U — a powerful distribution system for everything from lectures to language lessons, films to labs, audiobooks to tours — is an innovative way to get educational content into the hands of students.



**Learn how to access iTunes U on your iPhone or iPod touch.**

[Watch the video ▶](#)



> VIEW ALL COURSES

> Course Home  
> Syllabus  
> Calendar  
> Lecture Notes  
> Assignments  
> Exams  
> Video Lectures

> Download Course Materials

> Send us your feedback  
> Cite this course  
> Email this page  
> Newsletter sign-up  
> Donate

SHARE

Home > Courses > Physics > **Physics I: Classical Mechanics**

## 8.01 Physics I: Classical Mechanics

As taught in: Fall 1999



Professor Lewin puts his life on the line in [Lecture 11](#) by demonstrating his faith in the Conservation of Mechanical Energy.

### Course Features

> Video lectures  
> Subtitles/Transcript  
> Assignments and solutions

### Level:

Undergraduate

### Instructors:

Prof. Walter Lewin

Course Features

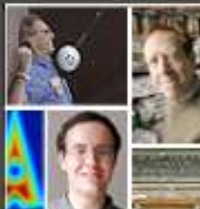
Course Highlights

Course Description

**DONATE**

OCW Course

Support your course or faculty



Become an OCW Course

Highlights of New Videos on



### Course Highlights

> Faculty introduction - video  
> Lecture notes  
> Exams and Solutions



UNIVERSITY  
OF THE PEOPLE  
Tuition-Free Online University

June / 21 / 2010

L

ABOUT US

ACADEMICS

ADMISSIONS

FEES

THE METHOD

SUPPORT US

Term-1 2010 Application Deadline: July 8, 2010



Your opportunity is here

TAKE IT >

CLICK  
HERE >>



Research Partner of  
Yale Law School's  
Information Society  
Project

TALKING  
ABOUT US

*"I need not the titles but the information, training & connectedness  
of peers who believe in universal education"* M., Australia

SUPPORT US

Because education should be a right

LEARN MORE

Learn about our academic programs

5 EASY  
STEPS

APPLY NOW



Become a fan  
on facebook >



Email  
to a friend

NEWS CENTER

see



UN NEWS CENTER  
UN Announces Launch...  
Official site >

Business  
Week

BUSINESS WEEK  
Tuition-Free University...  
Official site >

ADVISORY COMMITTEE

see



Professor Jack M. Balkin  
Harnessing new tech...  
Read more >



Dr. Russell S. Winer  
The University of the People  
Read more > 49

## TALKS | TED PARTNER SERIES

# Brewster Kahle builds a free digital library

EG 2007, Filmed Dec 2007; Posted Sep 2008



Subtitles Available in: 14 languages [Off]

## About this talk

[Open interactive transcript](#)

Brewster Kahle is building a truly huge digital library of every book ever published, every movie ever released, all the strata of web history ... It's all free to the public unless someone else gets to it first.

## About Brewster Kahle

Brewster Kahle is an inventor, philanthropist and digital librarian. His Internet Archive offers 85 billion pieces of deep Web geology -- a fascinating look at the formation of the Internet... [Full bio and more links](#)

## What to watch next



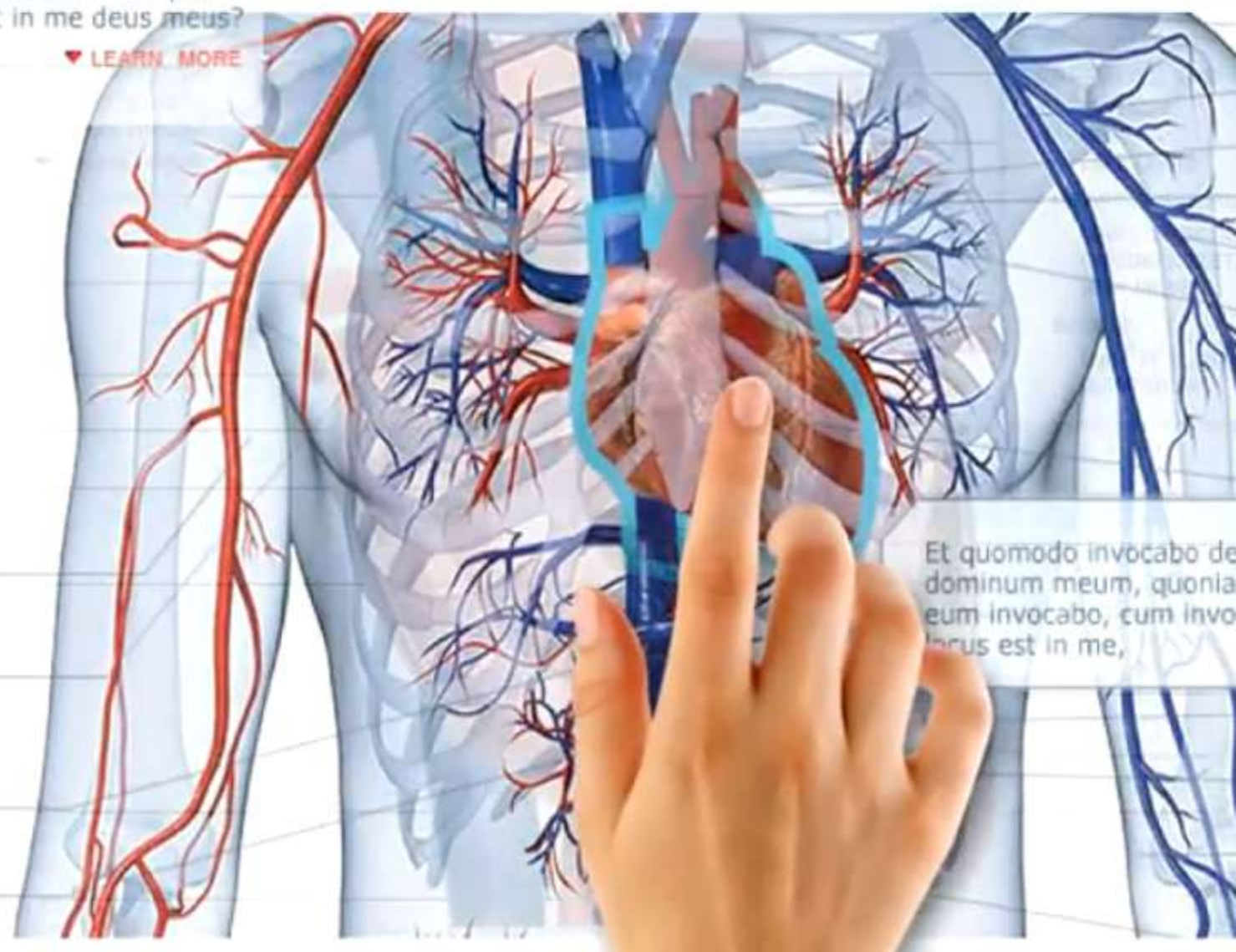
EG 2007  
**Kevin Kelly on the next 5,000 days of the web**  
19:34 Posted: Jul 2008  
Rated:  
**Fascinating** Informative  
Inspiring...

## Other talks from "Technology, Design and History and Destiny"



locus est in me, quoveniat in me deus meus?

Axillary artery [♥ LEARN MORE](#)



Brachial artery

Pulmonary veins (red)

Gastric artery

Common hepatic artery

Et quomodo invocabo de  
dominum meum, quonia  
eum invocabo, cum invo  
lus est in me,



#### CONTENT

[Arizona Education News](#)  
[The Arts](#)  
[Career & Technical Education](#)  
[Health & Wellness](#)  
[Language Arts](#)  
[Mathematics](#)  
[Science](#)  
[Social Studies](#)  
[Technology](#)  
[World Languages](#)  
[Professional Development](#)  
[Student Work](#)

#### STAFF FAVORITES

[K-12 Center Tips](#)  
[Bats, Bones and Biology](#)  
[Mummification](#)  
[Somewhere Over the Rainbow](#)  
[Masks of Mexico](#)  
[PBSAz Essential Concepts](#)

#### Links

[IDEAL](#)  
[alt\\*1](#)  
[AZ Dept. Of Education](#)

#### FEATURED CONTENT

See All



Ask a Biologist



Arizona State Museum: Southwest Culture



Friends of the San Pedro River



Paradise Valley USD: Language Arts



Explore Mars



Arizona Educator Proficiency Assessments

#### STUDENT SHOWCASE



Cave Creek USD: Student Work



Conexiones



Our City Podcast

#### SEARCH

IDEAL Power Search

#### TOP DOWNLOADS

1. [Stargazing for Everyone](#)  
Tony LaConte
2. [MER - Entry, Descent and Landing](#)  
NASA/JPL
3. [Body Systems](#)  
Malory P.
4. [Year in Review 2009-Animoto](#)  
Peggy George & Kevin Honeycutt
5. [Parts of Speech - Star Wars Style](#)  
Kevin Storey

#### FEATURED CONTRIBUTORS

[Arizona State Parks](#)  
[Arizona Living Legacy](#)  
[PBS](#)  
[Paradise Valley Schools](#)  
[Arizona State Museum](#)  
[Central Arizona Project](#)  
[AzTEA](#)  
[Stargazing for Everyone](#)  
[Conexiones](#)  
[K12 Center](#)  
[MEC](#)

**open**

**more  
accessible**

**more  
comprehensive**

**less dependent  
on physical media**

**less dependent  
on geography**

**mobile**

**more immediate /  
real time**

**more  
convenient**

**what you can do with  
what you know**

**v.**

**what you know**

**individualized**

**flexible**

**adaptive**

**personalized**

# HOW?



Important

Transforming American Education

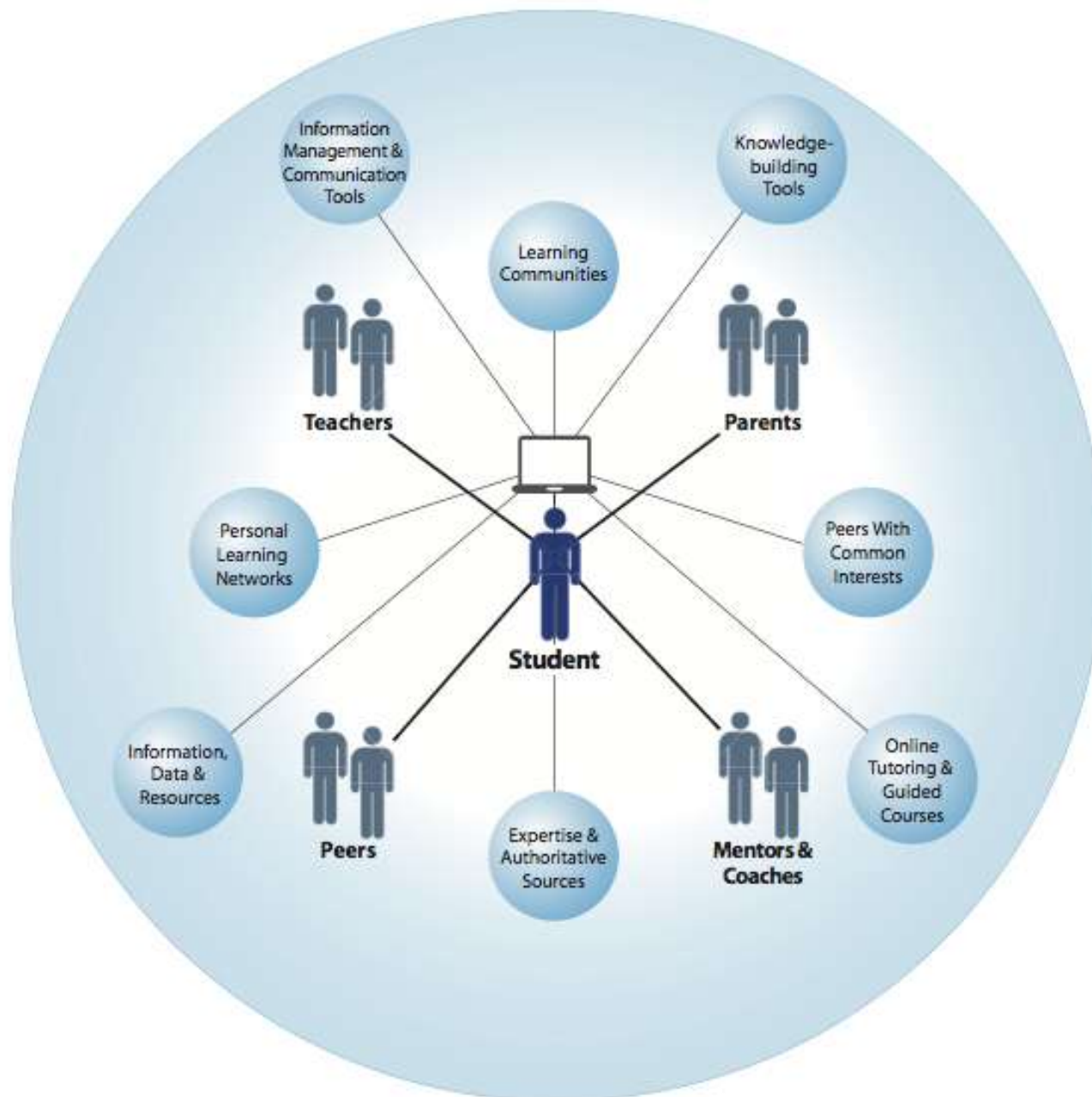
# Learning

**Powered by Technology**

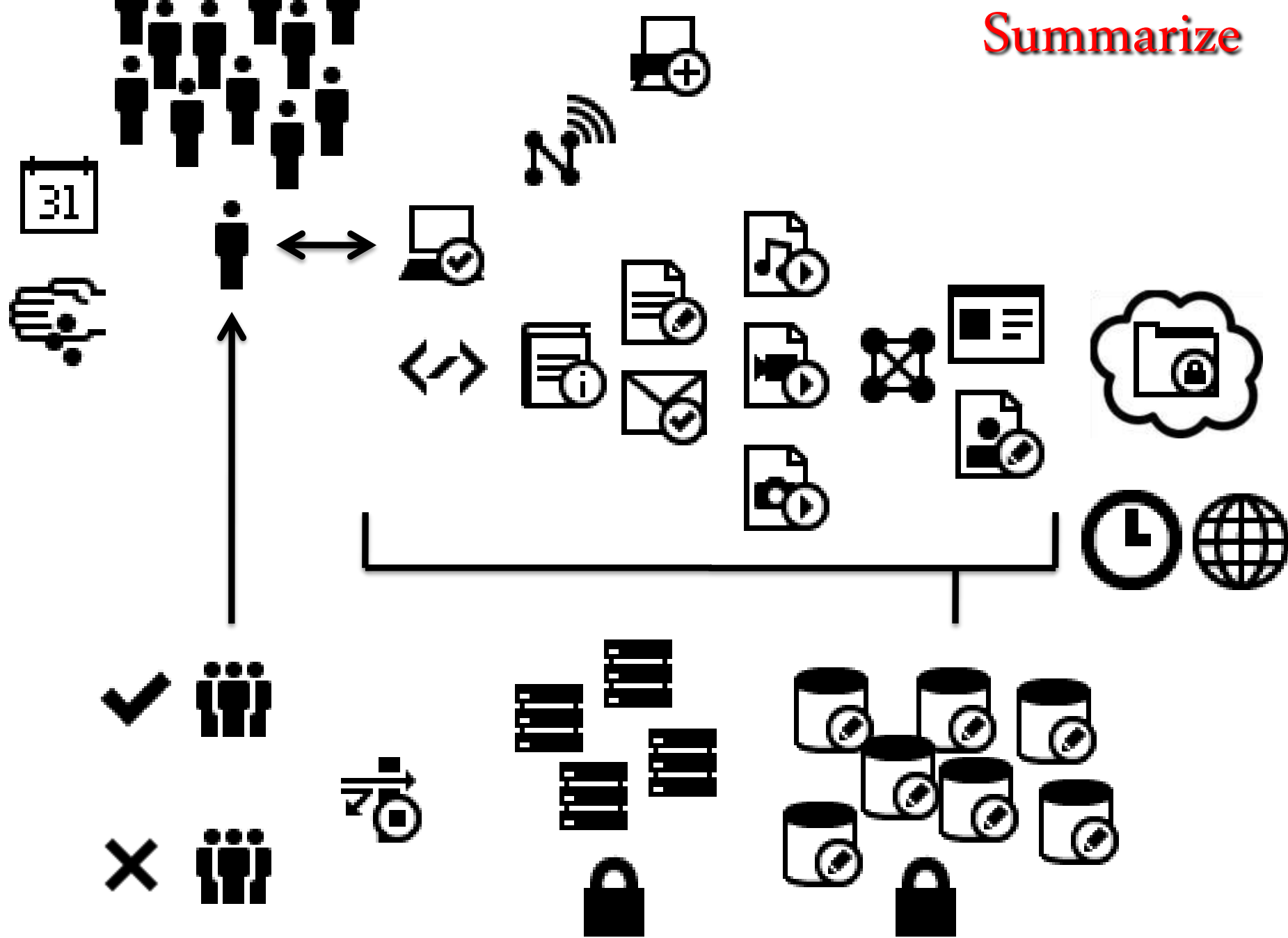
National Education Technology Plan 2010

U.S. Department of Education  
Office of Educational Technology

Figure 1. A Model of Learning, Powered by Technology



# Summarize



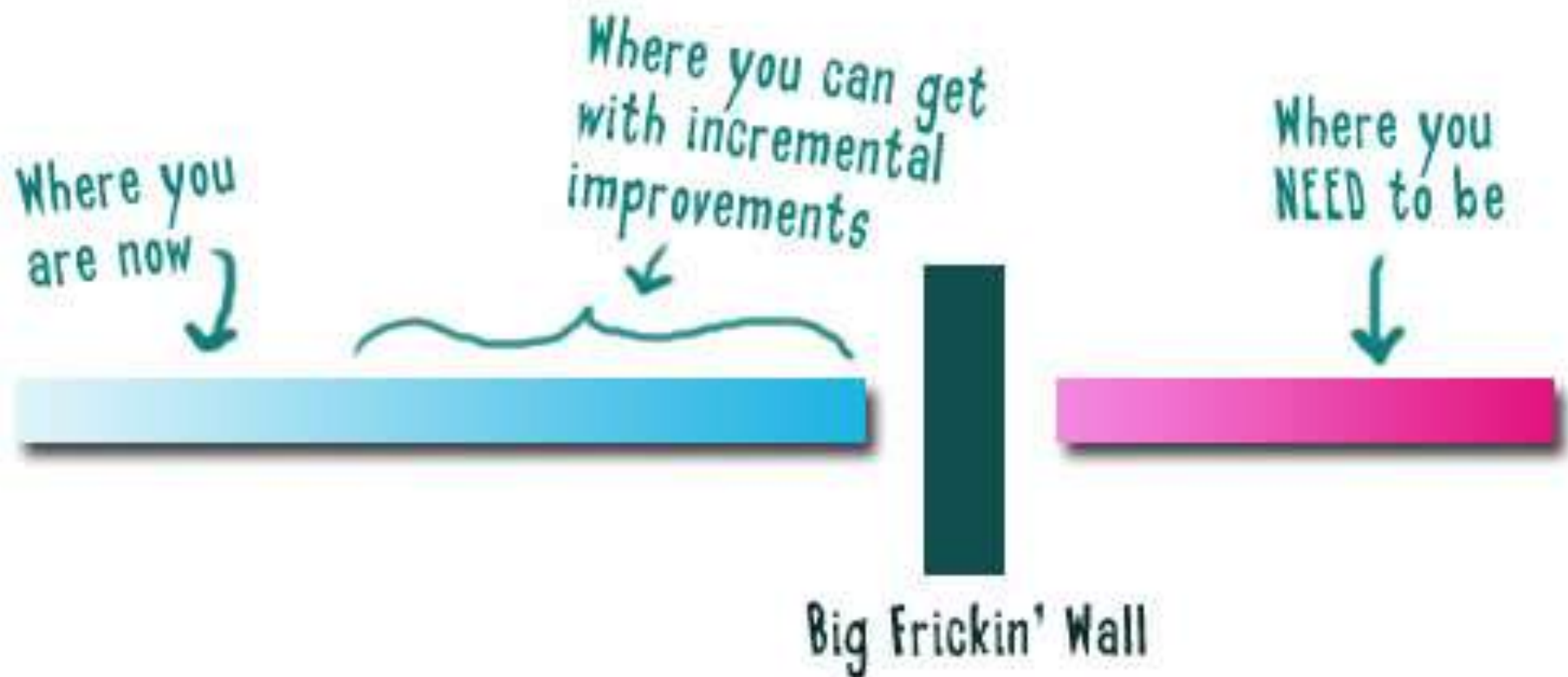
# Takeaways

**K-12 education is  
facing multiple  
disruptive  
innovations.**

**The existing  
educational model is  
not a given.**

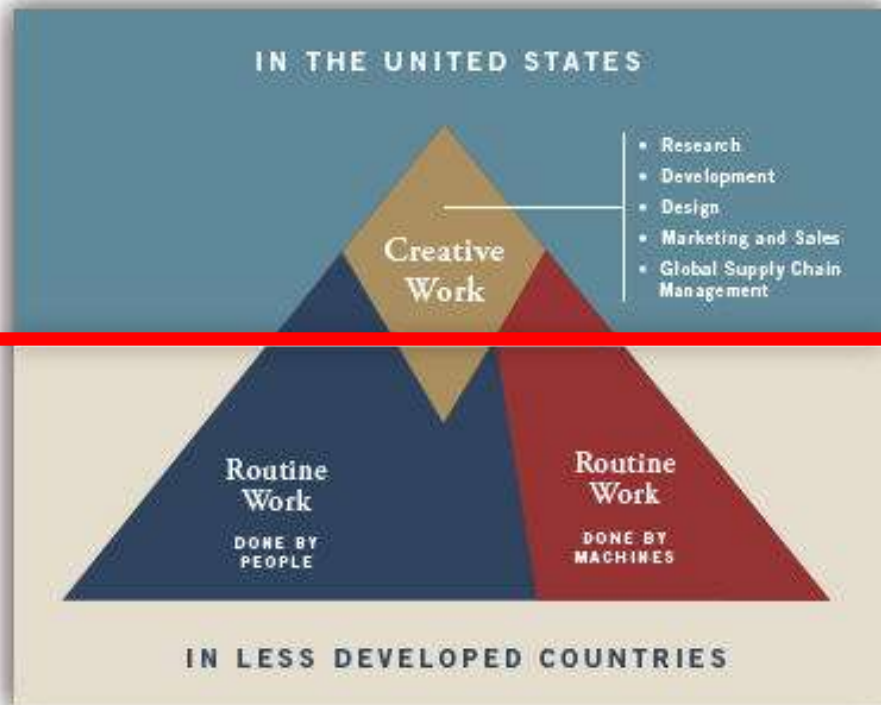
**This is sneaking up  
on most school  
organizations.**

# Incremental vs. revolutionary improvements...



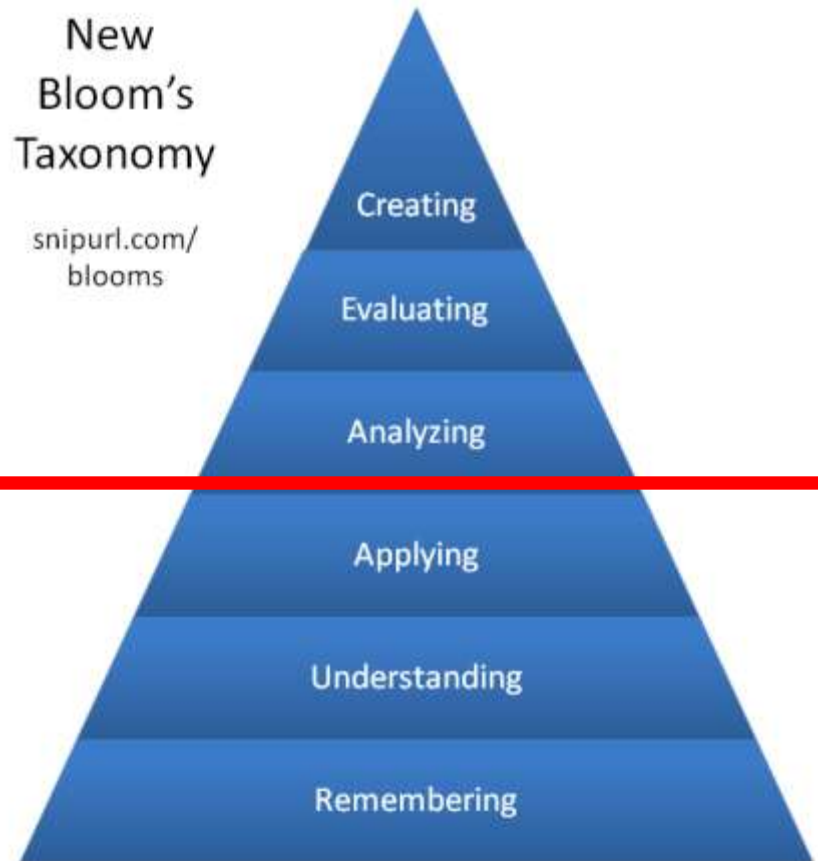
## PROTOTYPICAL U.S. INDUSTRY

*in 10 years if all goes well*



## New Bloom's Taxonomy

[snipurl.com/blooms](http://snipurl.com/blooms)





# The 21st century is here.

(Isn't it time we started  
preparing students for it?)



The Future

NEXT EXIT 



**No one will thank you  
for taking care of today  
if you have failed  
to take care of tomorrow.**

Joel Barker

**URGENT**

The people in charge  
of leading school  
organizations into the  
21st century ...

often are the  
least knowledgeable  
about the 21st century.

# Planners vs. Searchers

**P** Announce good intentions –  
**don't motivate**  
anyone to carry them out

**S** **Find** things that  
work and get some  
reward

**P**

**Raise expectations  
but take **no**  
**responsibility** for  
meeting them**

**S**

**Accept  
**responsibility**  
for their actions**

**P**

**Determine** what to  
supply

**S**

Find out what's **in**  
**demand**

**P** Apply **global**  
**blueprints**

**S** Adapt to **local**  
**conditions**

**P** Believes outsiders  
know enough to  
**impose** solutions

**S** Believes only insiders  
have enough  
knowledge to **find**  
solutions

A+

# RACELAND ELEMENTARY SCHOOL



IRRELEVANT  
TO CHILDREN'S  
FUTURES

MATH

WRITING

Reading

**Buckle Up  
Next Million Miles**



# Thank you!

Justin Bathon &  
Jayson W. Richardson  
Co-Directors, CASTLE  
Justin.bathon@uky.edu  
jayson.richardson@uky.edu